



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/634,214

08/05/2003

Tahir Rashid

S01022.80999

6842

23628

7590

08/25/2004

WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2211

EXAMINER

ENGLUND, TERRY LEE

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,214

Applicant(s)

RASHID ET AL.

Examiner

Terry L England

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08052003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. Both figures are described under the "Discussion of the Related Art" section, wherein Fig. 1 is further identified as "a simple implementation of a current source" (e.g. see page 2, line 31), and Fig. 2 is "a cascaded version of the circuit of Figure 1" (e.g. see page 2, line 32). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The applicants are reminded of the proper language for an abstract of the disclosure, wherein the language should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc. In this case, the abstract begins with "This invention relates." Since the abstract should be describing the invention, this phrasing is clearly implied. Therefore, it is suggested "This invention relates to a current source adapted" to be changed to --A current source, adapted-- on line 2, and

Art Unit: 2816

“temperature which” on line 3 be changed to --temperature,--. Also, it is suggested “the start-up” on line 5 be changed to --a start-up current-- since the current had not been previously identified.

Claim Objections

Claims 1-7 are objected to because of the following informalities: For consistent labeling throughout the claims to minimize possible confusion between “first branch” and “first circuit branch”, it is suggested --circuit-- be added after “first” on line 3 of claim 1. Claims 2-7 carry over the objection from claim 1. An appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships relates to how the first and second circuit branches are actually related to one another. As presently written, although they are both connected between first and second reference voltages, the circuit branches could be independent from one another, sharing no other structural or functional characteristics.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. It is not understood what the “acts to reduce changes in the output current with the first reference voltage” limitation actually means on lines 6-7 of claim 1. For example, are the reduced changes related to when the first reference voltage is increasing during

Art Unit: 2816

start-up only, or to whenever there might be a change (e.g. fluctuation) of the first reference voltage? It is not clear in claim 2 how the first/second transistors relate to the branch/compensation resistors that are also in the first (circuit) branch (i.e. see lines 3-4 of claim 1).

Claim 6 recites the limitation "the collector" in line 3 with no clear antecedent basis for this limitation in the claim. If the applicants intend the limitation to imply the start-up transistors are actually bipolar, then it is suggested --bipolar-- be added prior to "transistors" on both lines 2 and 4 of claim 6. However, if the start-up transistors could possibly be MOS transistors, how would the recited "the collector of one of said start-up transistors" relate to them?

Dependent claims carry over any rejection(s) from any claim(s) upon which they depend.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

In so far as being understood, claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Sean et al. Fig. 1 shows a current source for providing output current I_3 , wherein the current source comprises first circuit branch M1,M1C,R1-R3,Q1-Q2 with branch resistor R1 and compensation resistor R2 connected to junction node N4, and second circuit branch M2, M2C,M3,M3C, R4-R6; and start-up circuit M4-M9 connected to generate start-up current I_{START} applied to junction node N4. Both circuit branches are connected between first reference voltage V_{cc} and second reference voltage (i.e. ground). Compensation resistor R2 is connected to the

Art Unit: 2816

second reference voltage through Q1. One of ordinary skill in the art would understand that when first reference voltage V_{cc} increases during start-up, the voltage across compensation resistor R2 would also increase. Since constant output voltage V_{REF2} is desired, it would be understood that changes to output current I3 would be reduced (e.g. minimized) by the overall circuit's operation. Output current I3 is controlled by control signal CTL provided by comparator 200, which in turn responds to voltages at nodes N4 and NE2, which depend on first reference voltage V_{cc} . By reducing/minimizing changes to output current I3, a constant output voltage will be maintained. Therefore, claim 1 is anticipated.

No claim is allowable as presently written.

Allowable Subject Matter

However, claims 2-7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Once those rejections are satisfactorily addressed/corrected, the claims would be allowable because there is no motivation to modify or combine any prior art reference(s) to ensure the current source includes: 1) first/second series-connected transistors in the first circuit branch as recited within claim 2 (upon which claims 3-5, and 7 depends); or 2) the start-up circuit as recited within claim 6.

Prior Art

The other prior art references cited on the accompanying PTO-892 are relevant to at least some of the claim limitations. Fig. 5 of Nishikawa shows start-up circuit J1 providing start-up current I_{START} to a junction node of resistor R1 and transistor Q1 of a first circuit branch. However, there is no motivation to replace Q1 with a second (e.g. compensation) resistor. Figs. 2

Art Unit: 2816

and 4 of Sirito-Olivier show examples of current source structures that closely correspond to the applicants' own Figs. 2 and 1, respectively, with the exception of the applicants' resistors Re0-Re2 that are coupled between first reference voltage Vdd and an emitter of a respective transistor. However, this reference shows neither a start-up circuit/current, nor two resistors connected to a junction node. Wong et al. shows/discloses start-up circuit 600 in Fig. 6 that provides start-up current $I(SU)$ to a junction node connected to resistor 333 (shown in Fig. 3). However, there is no motivation to add a second (e.g. branch) resistor to that junction node, and even if the two resistors 331,332 of Fig. 3 are deemed the branch/compensation resistors, they do not receive start-up current $I(SU)$. Therefore, none of these references clearly shows or discloses a current being applied to a junction node connected to branch/compensation resistors, wherein the voltage across the compensation resistor increases with the first reference voltage, thus reducing changes to the output current.

The prior art references cited on the IDS submitted Aug 5, 2003 were reviewed and considered. None of these references clearly shows or discloses a start-up circuit/current with respect to the junction node (connected to branch and compensation resistors) as recited within independent claim 1. However, two of these references were of special interest. The reference of De Langen et al. shows circuits in Figs. 5, 6, and 6A having two resistors connected at one junction node that receives current from other circuitry. However, this reference does not show or disclose a start-up circuit for providing current to that node, and even discloses that "an additional startup circuit" is not needed (e.g. see column 2, line 25). The Ryat reference does disclose start-up current I_{START} , but it is disclosed as not being critical, wherein the output current

Art Unit: 2816

is independent of the start-up current, and the current source circuit is self-starting. Also, the Ryat circuit lacks two resistors connected at a junction node.

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (571) 272-1740.

The new central official fax number is (703) 872-9306.

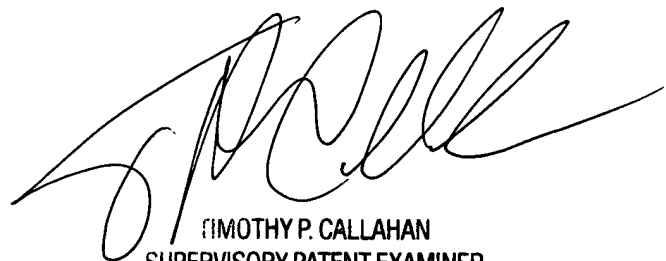
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terry L. Englund

18 August 2004



TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800